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ABSTRACT

The purpose of this three-year evaluation was to determine the effects of a newly designed curriculum for early adolescents. From a pool of 600 applicants, students were randomly assigned to the new curriculum school and to traditional schools curriculum. A number of measures of the implementation of the curriculum and its effects on students were made. Findings on the effects of an innovative curriculum on a student-perceived learning environment, student self-concept, parental reaction, and the usefulness of randomization in formative and summative evaluation are analyzed and discussed. (Author)

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An Evaluation of A New Curriculum Design
As A True Experiment

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INTRODUCTION

This paper reports an evaluation of an innovative middle school curriculum using an evaluation design that is conventionally used in a true experiment where subjects are randomly assigned for the control of error. The design was developed during the planning year for the school to maximize the usefulness of formative evaluation for the program administrators. It is the contention of the authors that good experimental control need not be inimical to the needs of program administrators in the interest of serving the concerns of evaluators. The primary purpose of this paper will be to focus on the methodological facets of the evaluation design.

School System X is a school system in one of the major population growth areas of the United States. Once located on the periphery of a large metropolitan area, it has been plunged into a residential and commercial building boom, due to accessibility and available land, which has increased its school population by many multiples in the last ten years. With this influx of population a small, identifiable, conservative community has been transformed not only into a large population center integrally tied to the large city from which much of its population came but also into a school system that is among the three largest in the state. As a result, School System X has felt the well-known pressures of rapid expansion of staff and facilities while at the same time experiencing the demand for revising traditional curriculum that seemed especially unsuited to students in the light of emphasis on individuality

and freedom of choice. A three-year proposal was funded by the Office of the Superintendent for Public Instruction to develop a curriculum for early adolescents that met the needs of students who did not seem to be benefiting from the traditional junior high or middle school curriculum. An evaluation design was developed by the Office of Evaluation Research (OER) of the University of Illinois at Chicago Circle.

METHOD

A number of problems in the junior high schools had suggested that the curriculum was not satisfactory for many early adolescents. Increasingly, schools at this level had reported more truancy, greater student-teacher conflict, and more public complaints. Many of the new residents to the community were dissatisfied with a traditional subject-centered junior high school with forty-five minute periods, mass scheduling, and minimal student-parent participation in the curriculum development process. During the planning year a citizen's committee was formed to promote lay involvement in constructing the curriculum for the school. From this planning committee a lay board (composed of parents, pupils, and teachers) was formed which took an active part in policy formation and curriculum input. The evaluators made regular reports to this board over the two-year life of the school.

The macro objective of the project was to develop a model school which would design and proof a curriculum. At the end of this period the proven elements of this curriculum would be studied for their incorporation into the middle schools in the system and

for possible dissemination to other interested districts. Briefly summarized, the principal specific objectives of the Model School curriculum and the components for the evaluation were as follows:

1. The Model School will secure and demonstrate greater community involvement. The community was to serve in policy making, contribute to curriculum construction and be actively involved in the instructional program. For evaluation purposes community involvement was studied at two levels: (a) in the lay board and committee system of the Model School and (b) in the instructional program.
2. The learning environment of the Model School will provide a more "humanized" setting for students. What constituted a humanized environment presented problems both for curriculum development and evaluation. When the program that had been developed during the planning year was first implemented, the interpretation of "humanized" was very Rousseauian with extensive freedom for students. In practice, this soon ran into severe criticism from the community regarding attendance and growth of anti-social norms dominated by high risk aggressive students with long records of behavioral difficulties. A modified operational definition of a humanized setting placed emphasis on joint teacher-pupil planning, work contracts, and student input into program offerings. These were assessed through interviews, classroom observations (Kunkel and McElhinney, 1968), and a perception of learning environment (Anderson and Walberg, 1971).

3. Over the course of the program year, Model School students will show at least as much growth in the cognitive domain as similar students in the traditional middle schools. Cognitive growth was defined as that which is measured by standardized achievement tests. In planning for the measurement of cognitive growth, the evaluators fit the demands of the evaluation design into the systemwide testing program. The school system used an achievement battery published by Science Research Associates which included tests on Reading, Language, Mathematics, Social Studies, Science, and Use of Sources.
4. Over the course of the program year, Model School students will show greater growth in the affective domain than students in traditional schools. Affective growth was defined in the evaluation as growth of self-concept as measured by a self-concept instrument (Gordon, 1968) administered to all students which has seven subscales: teacher-school, physical appearance, interpersonal adequacy, physical adequacy, autonomy, academic adequacy, and emotions. Also, data from classroom observations provided additional input from which affective growth could be assessed.
5. Model School pupil-personnel service efforts will be completely integrated with all other efforts of the total Model School team to approach a student's total educational environment as a whole. School System X had felt great dissatisfaction with their guidance program in the junior high schools which consisted of independent counselors. In the Model School the guidance function was carried by all classroom teachers, and special mini-courses in problems of early adolescents were given. Each student was

assigned to a teacher for advice on scheduling and academic accountability. The evaluation included interviews and questionnaires with students on the frequency and quality of the assistance they obtained from the pupil-personnel service of the Model School and from the comparison schools.

6. The Model School will demonstrate that its program can raise the overall quality of education without an increase in cost per student. Curriculum experimentation has often faltered in its generalization to other settings due to higher costs. Thus, in the planning stage a cost-effective objective was included and per pupil costs were settled on as the appropriate basis of comparison. The per pupil costs were examined for the first year only.

Curriculum evaluation conducted in natural settings has always posed special problems. Fair comparison, the heart of evaluation, has been difficult in the past, as evaluators search for comparatives which will serve to control error and permit the accurate attribution of results to causes. The search for comparisons has spawned a variety of techniques including matching of subjects, contrast groups, and the use of times series where the experimental subject serves as his own control. While these techniques permit a form of evaluation to be conducted, none have been totally satisfactory.

The evaluation of the Model School was conducted according to the theoretical tenet that control of error is as important to the interpretation of results in natural settings as in laboratory settings. Further it was postulated that the results derived should be maximally useful to the curriculum developers as well

as meet the methodological requirements of scientifically-oriented evaluators. Thus, the design was to incorporate both formative and summative evaluation concerns respecting the needs of the curriculum for early adolescents and the evaluators' requirements for conducting an evaluation that met certain standards of scientific rigor.

When the planning year was finished and the curriculum design written, recruitment of students began. Presentations to students, teachers, guidance counselors, and parents stimulated the flow of slightly more than six hundred student applications for attendance to the Model School (which had a capacity of only three hundred). Threatened by a sticky political problem of selection, the School System had an unusual opportunity to conduct a true experiment in a natural setting.

From the original pool of applicants, students were randomly assigned to control and experimental groups. The significant variables and their relationships and interactions were derived from the original objectives. In the evaluation design the dependent variables were student behaviors; the independent variable, the curriculum of the Model School. Through random assignment of students, changes in student behavior coming from other sources such as history and maturation were controlled. Experimental mortality was controlled through random selection of additional students from the control group as replacements for the experimental group. The latter source of error was very small for there were few changes in either the experimental or control group over the time period of the experiment.

A number of measures developed and validated in previous evaluative studies were used to document the curriculum treatment and assess the variables contained in the objectives. These are summarized in Table I. Interviews were held with a sample of the student population, a sample of teachers in the regular program of the junior high schools and of teachers in the experimental curriculum of the Model School, and a sample of parents whose children attended the schools involved in this study. Over the two-year period data collected at several points from students, teachers, and parents were summarized for feedback to the Board of the Model School and its faculty.

RESULTS

Results are reported by objective and encompass the two-year span of the existence of the Model School. The conclusions examine the methodological advantages and implications of using an experimental design in a natural setting for curriculum evaluation.

1. Parent and Community Involvement

Greater community involvement was evaluated by comparing the Model School with other junior high schools on participation of students in community activities and parents' involvement in the schools' committees and classrooms. On all levels the Model School was greater in frequency and quality of involvement. While the Model School curriculum originally planned a work experience for every student, in practice this was impossible due to safety regulations and state laws governing the employment of minors. About 40% of the students were able to obtain a volunteer position to gain work experience, however, none were able to obtain paid employ-

ment. One of the more satisfactory work experiences as reported in interviews with students and teachers were the volunteer day care placements. (A day care center was established in the Model School and manned under adult supervision by students.) None of the other junior high schools provided volunteer work experiences.

Community participation in the classrooms of the Model School was far more frequent than in the comparison schools. A log book on school visitations was kept and a record of participation in classrooms analyzed. This was compared with interview responses of the control teachers regarding the participation of community people in the classroom, which was found to be non-existent. Of all community activities, the week of camping experience proved most satisfactory to Model School students. Students were accompanied by parents and teachers, and a full science curriculum was run.

One area in which the evaluators found student-community conflict was in the Model School committees where students in the first year objected strongly to ersatz participation in governance. Parents were far less open to full equality of students in governance than were teachers. There was some change in parents' attitudes in the second year as students' participation increased.

In the follow-up interviews after two years, differences in attitude toward education were examined between a sample of parents of Model School students and parents of students in the regular junior high school programs. No differences were found. However, the breadth and depth of parent participation had strong effect in generating support for the Model School curriculum. For example,

due to the means by which the student body was drawn from the other seven junior high schools, no resultant reduction in class size was possible and the Model School was phased-out by action of the School Board. However, a delegation of 300 parents, the largest ever to attend a meeting on a single issue, exacted a promise from the School Board to move a number of the components into the traditional junior high school programs. So far this seems to have been only moderately successful for reasons discussed in the last section of this paper.

2. Humanized Setting

A more humanistic setting was projected as a goal for the Model School. What constitutes a humanistic setting and how it would be evidenced in students was a source of difficulty for the evaluators as well as the program developers. An instrument which was developed to identify qualities of a helping relationship, empathy, concern, and acceptance (Bier and Robinson, 1971) was administered the first year but no significant differences were found. Observations of the classrooms were conducted four times over two years using a scale with five subscales and forty-five items. Those items on which Model School and control schools differed significantly are reported in Table II. These items were believed to measure humanistic settings, were found to favor the Model School, and were rated progressively more favorably during the two-year period.

In the classroom observations, the significance of using ran-

dom selection for a comparison with the experimental classrooms is illustrated in Table III. In the first year the evaluation had to rely upon volunteers for comparison data; as a result the two groups were very similar in their profiles (Table III presents items from one of the five classroom observation subscales). In the second year a random sample of classrooms were selected and observed as controls. These were found to profile much differently than both the volunteer and the experimental classrooms. They were far less humanistic than the volunteer control classrooms and were considerably different than the experimental group in the first year.

Changes and differences in the humanized setting were borne out in a second measure -- student perception of the learning environment. Measures of the learning environment were taken twice over the two years. The results of these were analyzed in terms of changes over the two-year period in each of the two groups (see Table IV). Model School students perceived their environment more favorably on seven of the fifteen scales, while control students did so on only one scale. However, the most important analysis is in Table V, where differences between Model School students who would have attended a particular control school and the controls who did attend that school were compared. The extremes in the climates of schools are seen with the control schools having significant differences ranging from one to twelve subscales. The two most extreme schools, C and F, had differences on twelve and ten of the subscales which were significant. These two junior high schools

were found to be schools with highly competitive sports programs and with heavy emphasis on letter grades. Several other scattered bits of data confirm the impression that these two schools do indeed have a climate which is distinctly different and more negative for students' morale, particularly the kinds of students who were attracted to the Model School.

These findings were confirmed in interviews with students. Students in Model School were found to be more enthusiastic about their school setting, experience less conflict, and be more likely to recommend that other students attend their school.

3. Cognitive Growth as Measured by Achievement

The SRA Assessment Survey was administered by the school district to all sixth and eighth grades as a measure of cognitive growth. Inability to sort out the control students in the first year resulted in the use of contrast groups composed of the total sixth and eighth grades of the district instead of the randomized controls. However, the seventh graders were randomized and identifiable on SRA achievement tests. An F-ratio of variance of the standard deviations was run and found to be significant at .05 level which seemed to indicate that in the seventh grade the students in the lower ranks of the dispersion were doing better, thus narrowing the standard deviation (see Table VI).

In the second year all control and experimental students were administered the SRA Assessment Survey. While only one significant difference was found in the seventh grade in a test of the

difference of the means in the second year (a difference that could be expected to be found by chance given the number of analyses), the importance of randomization in controlling possible misinterpretation of results is seen. As an example, when contrast groups as opposed to randomized groups are compared, the Model School is seen as scoring higher on most subtests (see Table VII). While achievement in cognitive growth does not appear to be enhanced, it correspondingly was not harmed, and there was some evidence that it may have been enhanced for students at the lower end of the achievement scale. Clearly (see Table VII), the population from which the experimental and control group were drawn is not representative of the district average in achievement. This again illustrates the importance of studying random rather than contrast groups.

4. Affective Growth

The self-concept scale "How I see Myself" was administered to both Model School and control students as a measure of affective growth. The results were analyzed by the experimental group in 1973 against the experimental group in 1974. These analyses are carried in Table VIII.

Model School students perceived their relationships with teachers and their school significantly more favorably than did the control school students. Model School students also scored significantly higher in autonomy -- that is the degree to which expressive activities and individualized work are enjoyed. In comparison to the 1972-73 results for Model school students, the 1973-74 school year's students scored significantly higher in

autonomy. Control school students rated their teacher and student relationships significantly lower in 1973-74 when compared to the 1972-73 results (not shown). No significant differences were discovered between control school students in the following schools with the corresponding Model School students who would have attended these schools: School A, School B, School D, and School G. However, control school C students perceived themselves to be more adequate physically than did the Model School students; control school E students perceived their relationships with teachers and their school less favorably, their physical appearance less positively, and themselves less autonomous; control school F students perceived their relationships with teachers and their school significantly less favorably. It thus can be concluded that differences in self-concept that did not exist in 1972-73 have developed in the past year between Model School and control school students. This lends further support to the evaluators' belief that Model School students have gained in affective growth.

5. Pupil-Personnel Service Integration

Teachers were interviewed on their opinions of the counseling services at their schools. At the beginning of the year, most Model School teachers believed the services were very good, but by the end of the year, they saw room for improvement and thus decreased their ratings. The teachers at control schools initially gave positive ratings of their counseling services but also decreased their ratings slightly toward the end of the year. The control school teachers explained that the services they had were good,

but not at all adequate for their needs. Both Model School and control school teachers meet with counselors on students' problems and needs; however, the Model School teachers did so much more frequently. That is, the Model School teachers met with counselors on a regular basis ranging from every day to monthly meetings and as needed; the control school teachers met with counselors only when serious problems occurred.

The evaluators concluded that the pupil-personnel services were more fully integrated with the curriculum in the Model School than in the control schools. In addition, there was greater satisfaction with the advising and counseling given to students.

6. Cost Effectiveness of Model School

A comparative analysis was made of the costs of the Model School, another junior high school which was started that year, and the over-all district per pupil costs. The Model School per pupil costs were \$890.00; the comparative junior high school per pupil costs were \$1,122.34; and the school district per pupil costs were \$972.96. The Model School incurred start-up costs for equipment and materials that are not part of the budgets of the other district schools and in the first year of operation are an expected added cost. Given the documented gains in structuring a different climate and the recorded gains in objectives 2 and 3 the evaluators believe the Model School has provided an innovative program at a cost that is comparable to the per pupil cost of the district.

CONCLUSIONS

A number of authorities (Campbell and Stanley, 1963, and Campbell and Cook, 1974) have emphasized the importance of randomization to control error in attribution of results. Curriculum evaluations for a number of reasons -- class schedules, parental objections, and administrative resistance, among others -- have not generally used randomization in their designs. Randomization was accepted by the administrators and lay groups upon explanation by the evaluators, and was heralded as a fair way of selecting students for the Model School from the pool of applicants. One individual who remained unpersuaded of the virtues of randomization and pressed for pre and post test measures was the state supervisor of the project. It was unclear on how the use of the results at the state level demanded the use of such a design. Once an understanding was reached regarding error and its control, results in the formative evaluation were accepted and acted upon with confidence by the policy-making group of the Model School. As a result there was considerable change in curriculum, instruction, and governance in the second year.

As has been stated previously, randomization did protect the evaluators from errors commonly encountered in curriculum where contrast and comparison groups are used. Moreover, the evaluation of the curriculum treatment over time provided stronger evidence of the increased success of the desired effects on students' behavior. A follow-up study is being conducted this year on the experimental and control groups to see how this two-year experience influenced

the students' perception of the curriculum in the subsequent year. All students are in a more traditional, formal curriculum in junior and senior high schools during the 1974-75 school year.

As for the components of the Model School curriculum which induced the results reported, few seem to have been adopted by the seven control schools. Low administrative support, scheduling, and fixed concepts of teacher-pupil roles militate against acceptance and implementation. There are still pockets of interest and the staff of Model School, while dispersed, has had some impact on the schools they joined. The effects of the curriculum treatment were significant on the students who were in the Model School and did make a positive difference in their behavior.

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Table I
Evaluation Research Design Matrix 1972-73-74

OBJECTIVES:	INSTRUMENTS:	GROUP:	COLLECTION DATE:	DATA ANALYSIS:
Community Involvement	Minutes of Committee Meetings	Committee Members	June	Content Analysis
	Telephone Interviews	Sample of X & C Parents	April	Content Analysis
	Participation and Visitation Logs at X School	Parents, Teachers, Students, Community	June	Content Analysis
	Feedback Sessions	Faculty, Staff, Committee Members	November, April, June	Discussion
Learning Environment	Learning Environment Inventory	All X & C Students	March	T-test on difference between groups; t-test on difference of each group with previous year's results
	Interviews	Sample of X & C Teachers	November, April	Content Analysis
	Questionnaires	Sample of X & C Students	November, April	Content Analysis
	Kunkel-McElhinney Classroom Observation Form	Sample of X & C Classrooms	October, May	T-test on difference between groups on pre and post test data
Cognitive Growth	SRA Achievement Tests	All X & C Students	March	T-test on difference between groups; F-test; t-test on difference of each group with previous year's results
Affective Growth	"How I See Myself" Self-Concept Scale	All X & C Students	March	T-test on difference between groups; t-test on difference of each group with previous year's results
	Kunkel-McElhinney Classroom Observation Form	Sample of X & C Classrooms	October, May	T-test on difference between groups on pre and post test data

Table 1 -- Continued, Page 2

OBJECTIVES:	INSTRUMENTS:	GROUP:	COLLECTION DATE:	DATA ANALYSIS:
	Interviews	Sample of X & C Teachers	November, April	Content Analysis
	Questionnaires	Sample of X & C Students	November, April	Content Analysis
Pupil Personnel Service	Interviews	Sample of X & C Teachers	November, April	Content Analysis
	Questionnaires	Sample of X & C Students	November, April	Content Analysis
Overall Cost of Program	Budget	District and X School	June	Cost Comparison

NOTE: The same evaluation design matrix was followed for both years of the study with approximately the same time period designated, except the cost-analysis which was conducted for the first year only.

Table II

COMPARISON OF CLASSROOM OBSERVATIONS, 1973-74

ITEM (in summary)	October 10, 1973			May, 1974		
	M	MEANS:	Level of Significance	M	MEANS:	Level of Significance
2.3.1. Abundant or no pupil work displayed	2.79	1.50	.05	3.17	2.15	.05
2.3.2. Content of displayed work according to uniformity or uniqueness	3.40	1.43	.05	3.61	2.40	.05
2.3.3. Displayed pupil work represents one student or all students	4.33	2.67	.01	3.38	3.44	NS
2.4.1. Evidence about the room of reward for creative or individual interests - extensive or none	3.54	2.00	.05	3.30	1.85	.01
2.5.1. Direct or vicarious experience as indicated by display of physical objects	1.92	3.14	NS	2.03	3.57	.05
2.6.3. Resources designated for teacher use only or freely accessible and used by students and teacher	3.79	2.61	.05	3.71	2.93	NS
3.5.1. Rewards for student behavior are not noticeable or frequent and noticeable	4.38	3.64	.05	4.64	3.42	.01
3.5.2. Attentiveness of students ignored or rewarded	3.93	3.08	.05	3.71	3.06	NS
3.6.1. Evidence that pupil experiences are based on mastery of preconceived content or based on individual needs of students	3.20	2.00	.05	3.16	2.46	NS
3.7.1. Students seem to be making none or extensive creative contribution in classroom interaction	3.67	2.50	.05	4.10	2.46	.01
3.8.1. Tasks appear based entirely on teacher's choice or student's choice	3.20	1.54	.01	3.35	1.60	.01

Table II -- Continued

3.8.2.	Seating requirements as per teacher's choice or student's choice	4.57	2.69	.01	4.92	2.20	.01
3.8.3.	Learning material used entirely based on teacher's choice or student's choice	2.87	1.64	.05	3.64	1.86	.01
3.8.4.	Who students work with appears entirely based on teacher's choice or student's choice	4.13	2.54	.01	4.28	2.14	.01
3.9.1. (reversed)	Instructors and learners energetic and alert or apathetic and bored	4.27	3.43	.05	4.13	3.46	NS
3.9.3. (reversed)	Activities are true to life or contrived and unreal	3.73	2.86	.05	3.96	3.00	.01
3.9.4.	Climate is authoritarian or autonomous	4.27	2.79	.01	4.14	2.33	.01
4.2.1.	Students afraid and embarrassed or anxious to try new activities	4.67	3.86	.01	4.23	3.66	NS
4.3.1.	Students rely on teacher directions and unable to proceed on own or students volunteer ideas and show resourcefulness	3.33	2.79	NS	3.66	2.26	.01
4.5.1.	Pupils interact only with the teacher or other pupils	3.07	2.57	NS	3.19	2.20	.05
4.7.1.	No or all students exhibit enthusiasm for the classroom activity	4.00	3.50	NS	3.89	3.00	.05
5.1.1. (reversed)	Teacher is understanding and friendly or aloof	4.60	4.14	NS	4.53	3.73	.05
5.2.1. (reversed)	Teacher is the final source of information or refers people to other sources	3.50	4.36	.05	2.92	1.92	.05
5.4.1. (reversed)	Teacher works cooperatively with learners or either completely dominates or is completely subservient to pupils	3.80	2.79	.05	4.32	2.80	.01

Table II -- Continued

5.5.1. Student's opportunity for self-expression is (reversed) abundant or absent	4.13	2.71	.01	4.34	2.93	.01
5.6.1. Student values and feelings affect room (reversed) extensively or remotely	3.73	2.71	.05	4.25	2.53	.01
5.7.4. Learning experiences highly or not affective (reversed) in content	3.47	2.46	.05	3.71	2.73	NS

* Significant at the .05 level

** Significant at the .01 level

Table III

Mean Ratings for Randomly Selected Experimental Classrooms,
Control Classrooms, and Volunteer Classrooms

MEAN RATING:

Experimental = -----
Control = -.-.-.-.-
Volunteer = _____

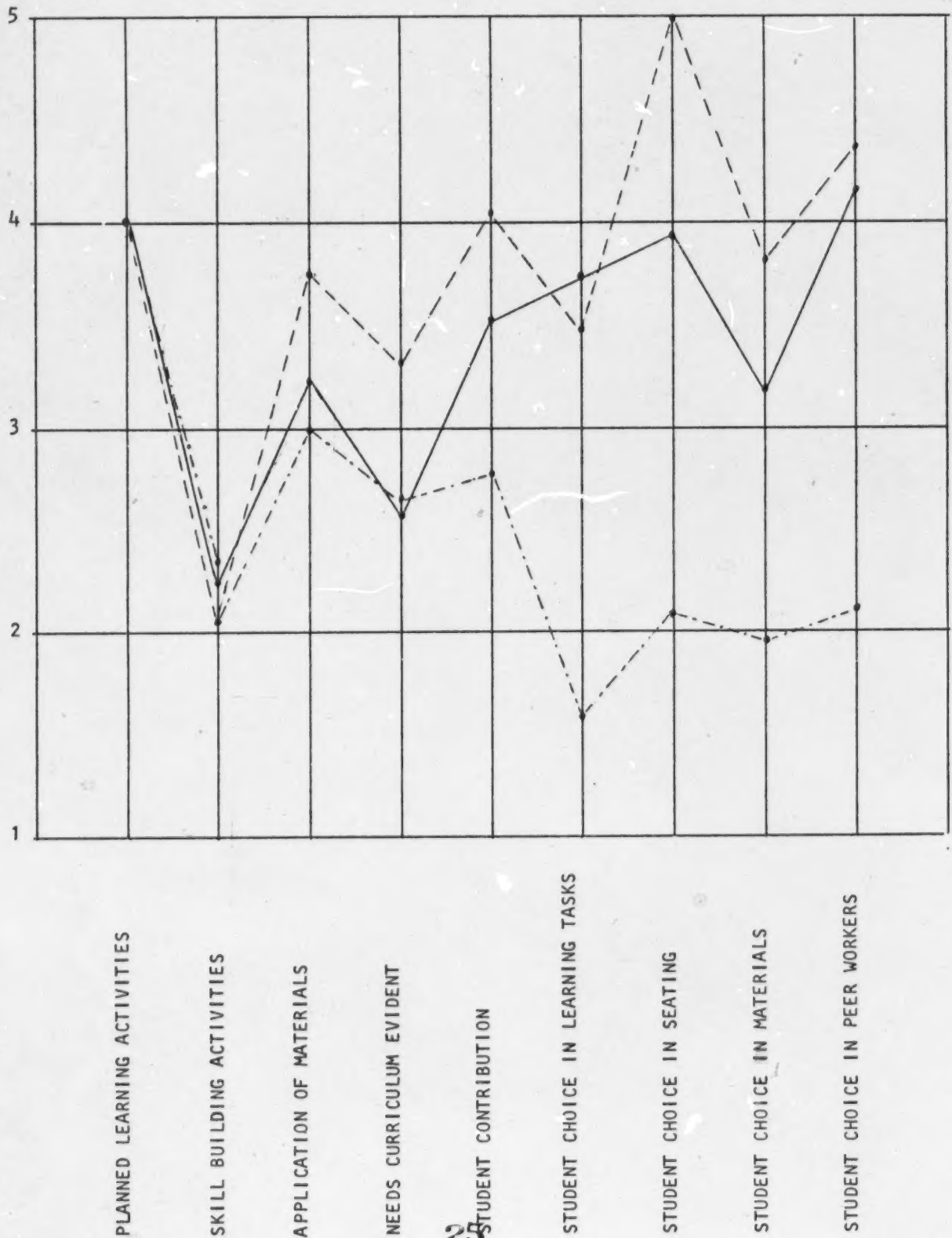


Table IV

Learning Environment Inventory

Comparisons of 1973 and 1974 Scores for Model School and Control Group

	Model School				t	Control School				t
	(N=239) 1973		(N=234) 1974			(N=237) 1973		(N=180) 1974		
	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
Cohesiveness	2.82	0.41	2.91	0.41	2.41*	2.88	0.49	2.88	0.45	0.00
Diversity	2.93	0.34	2.95	0.40	0.58	2.97	0.38	2.92	0.35	-1.39
Formality	2.62	0.36	2.60	0.36	-.60	2.78	0.43	2.78	0.39	0.00
Speed	2.45	0.36	2.27	0.39	-5.20***	2.48	0.38	2.46	0.51	-0.46
Environment	2.88	0.47	2.93	0.45	1.18	2.78	0.49	2.73	0.50	-1.02
Friction	2.66	0.49	2.49	0.45	-3.90***	2.78	0.51	2.72	0.49	-1.20
Goal Direction	2.77	0.45	2.83	0.44	1.46	2.73	0.46	2.71	0.44	-0.45
Favoritism	2.15	0.57	2.04	0.52	-2.20*	2.28	0.54	2.28	0.58	0.00
Cliqueness	2.59	0.40	2.69	0.40	2.67**	2.65	0.40	2.74	0.43	2.18*
Satisfaction	2.58	0.47	2.66	0.42	1.94	2.49	0.48	2.46	0.45	-0.65
Disorganization	2.25	0.56	2.18	0.49	-1.43	2.31	0.59	2.30	0.54	-0.18
Difficulty	2.41	0.36	2.37	0.34	-1.27	2.48	0.38	2.54	0.39	1.60
Apathy	2.34	0.54	2.24	0.53	-2.04*	2.40	0.53	2.44	0.51	0.77
Democratic	2.57	0.41	2.60	0.38	0.83	2.40	0.43	2.42	0.43	0.60
Competitiveness	2.43	0.45	2.33	0.45	-2.43*	2.59	0.49	2.54	0.49	-1.02

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table V

Control School A

Learning Environment Inventory

Scores for Control Group and School Model Group Would Have Attended

	Model (N=30)		Control (N=28)		t (df=56)
	Mean	S.D.	Mean	S.D.	
Cohesiveness	2.95	0.32	2.85	0.43	1.07
Diversity	2.99	0.39	2.83	0.36	1.62
Formality	2.68	0.37	2.69	0.31	-0.15
Speed	2.26	0.43	2.40	0.36	-1.32
Environment	2.83	0.52	2.70	0.31	1.14
Friction	2.45	0.48	2.65	0.47	-1.62
Goal Direction	3.00	0.45	2.65	0.39	3.11**
Favoritism	1.95	0.51	2.33	0.56	-2.70**
Cliqueness	2.63	0.42	2.61	0.40	0.25
Satisfaction	2.66	0.43	2.53	0.42	1.20
Disorganization	2.01	0.52	2.27	0.48	-1.93
Difficulty	2.39	0.46	2.57	0.33	-1.70
Apathy	2.25	0.69	2.36	0.48	-0.67
Democratic	2.58	0.45	2.41	0.34	1.57
Competitiveness	2.37	0.45	2.57	0.47	-1.66

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table V -- Continued

Control School B

Learning Environment Inventory

Scores for Control Group and School Model Group Would Have Attended

	Model (N=27)		Control (N=34)		t (df=59)
	Mean	S.D.	Mean	S.D.	
Cohesiveness	2.76	0.41	2.81	0.51	-0.47
Diversity	2.99	0.47	2.84	0.39	1.37
Formality	2.49	0.35	2.77	0.38	-2.90**
Speed	2.29	0.56	2.41	0.40	-0.95
Environment	2.97	0.41	2.89	0.49	0.74
Friction	2.49	0.42	2.57	0.48	-0.66
Goal Direction	2.73	0.39	2.70	0.42	0.33
Favoritism	2.17	0.59	2.29	0.51	-0.85
Cliqueness	2.87	0.51	2.62	0.37	2.12*
Satisfaction	2.57	0.42	2.57	0.40	-0.02
Disorganization	2.30	0.43	2.15	0.53	1.15
Difficulty	2.45	0.43	2.50	0.41	-0.42
Apathy	2.40	0.40	2.42	0.50	-0.23
Democratic	2.48	0.42	2.51	0.49	-0.27
Competitiveness	2.39	0.61	2.45	0.36	-0.52

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table V -- Continued

Control School C

Learning Environment Inventory

Scores for Control Group and School Model Group Would Have Attended

	Model (N=32)		Control (N=35)		t (df=65)
	Mean	S.D.	Mean	S.D.	
Cohesiveness	2.99	0.48	2.80	0.44	1.69
Diversity	2.93	0.33	2.96	0.33	-0.40
Formality	2.64	0.31	2.75	0.44	-1.15*
Speed	2.18	0.37	2.42	0.51	-2.23*
Environment	3.05	0.42	2.79	0.49	2.33*
Friction	2.42	0.50	2.79	0.57	-2.79**
Goal Direction	2.88	0.40	2.67	0.39	2.16*
Favoritism	1.89	0.50	2.31	0.68	-2.85**
Cliqueness	2.67	0.31	2.87	0.45	-2.04*
Satisfaction	2.70	0.41	2.41	0.47	2.68**
Disorganization	2.09	0.53	2.44	0.57	-2.64**
Difficulty	2.34	0.27	2.49	0.37	-1.81
Apathy	2.06	0.50	2.47	0.61	-3.03**
Democratic	2.70	0.37	2.47	0.47	2.19*
Competitiveness	2.26	0.43	2.69	0.50	-3.71***

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table V -- Continued

Control School D

Learning Environment Inventory

Scores for Control Group and School Model Group Would Have Attended

	Model (N=30)		Control (N=27)		t (df=55)
	Mean	S.D.	Mean	S.D.	
Cohesiveness	2.92	0.42	3.02	0.41	-0.86
Diversity	3.00	0.39	3.10	0.32	-1.07
Formality	2.63	0.44	2.98	0.38	-3.13**
Speed	2.35	0.34	2.35	0.48	-0.01
Environment	2.88	0.50	2.70	0.57	1.29
Friction	2.59	0.48	2.76	0.46	-1.33
Goal Direction	2.79	0.48	2.72	0.53	0.46
Favoritism	2.27	0.61	2.26	0.60	0.03
Cliqueness	2.72	0.37	2.80	0.41	-0.82
Satisfaction	2.67	0.46	2.50	0.41	1.40
Disorganization	2.37	0.52	2.20	0.46	1.32
Difficulty	2.32	0.29	2.48	0.35	-1.97
Apathy	2.24	0.56	2.38	0.37	-1.12
Democratic	2.52	0.41	2.41	0.45	1.02
Competitiveness	2.38	0.37	2.57	-0.54	-1.60

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table V -- Continued

Control School E

Learning Environment Inventory

Scores for Control Group and School Model Group Would Have Attended

	Model (N=18)		Control (N=16)		t (df=32)
	Mean	S.D.	Mean	S.D.	
Cohesiveness	2.98	0.29	3.05	0.45	-0.54
Diversity	2.91	0.45	2.86	0.30	0.37
Formality	2.64	0.29	2.73	0.40	-0.76
Speed	2.29	0.33	2.87	0.79	-2.86**
Environment	3.01	0.45	2.55	0.67	2.36*
Friction	2.61	0.40	2.84	0.49	-1.50
Goal Direction	2.81	0.39	2.72	0.49	0.57
Favoritism	2.06	0.38	2.46	0.68	-2.16*
Cliqueness	2.68	0.45	2.66	0.38	0.12
Satisfaction	2.53	0.35	2.21	0.61	1.91
Disorganization	2.24	0.51	2.35	0.52	-0.62
Difficulty	2.37	0.37	2.75	0.47	-2.61*
Apathy	2.31	0.57	2.51	0.66	-0.95
Democratic	2.57	0.32	2.25	0.48	2.33*
Competitiveness	2.40	0.35	2.63	0.65	-1.30

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table V -- Continued

Control School F

Learning Environment Inventory

Scores for Control Group and School Model Group Would Have Attended

	Model (N=21)		Control (N=21)		t (df=40)
	Mean	S.D.	Mean	S.D.	
Cohesiveness	2.99	0.37	2.76	0.40	1.96
Diversity	2.94	0.31	2.88	0.37	0.53
Formality	2.63	0.24	2.65	0.39	-0.20
Speed	2.31	0.30	2.57	0.55	-1.92
Environment	2.98	0.37	2.51	0.49	3.49***
Friction	2.47	0.46	2.76	0.46	-2.09*
Goal Direction	2.87	0.47	2.61	0.31	2.12*
Favoritism	1.89	0.52	2.25	0.47	-2.39*
Cliqueness	2.59	0.35	2.84	0.37	-2.33*
Satisfaction	2.74	0.34	2.35	0.39	3.56***
Disorganization	2.14	0.42	2.59	0.54	-3.01**
Difficulty	2.36	0.27	2.54	0.28	-2.03*
Apathy	2.17	0.50	2.67	0.44	-3.49***
Democratic	2.72	0.33	2.37	0.31	3.54***
Competitiveness	2.18	0.43	2.40	0.55	-1.44

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table V -- Continued

Control School G
Learning Environment Inventory

Scores for Control Group and School Model Group Would Have Attended

	Model (N=29)		Control (N=19)		t (df=46)
	Mean	S.D.	Mean	S.D.	
Cohesiveness	2.79	0.40	3.01	0.49	-1.64
Diversity	2.85	0.31	2.94	0.32	-0.99
Formality	2.60	0.38	2.86	0.29	-2.57*
Speed	2.25	0.37	2.38	0.48	-1.10
Environment	2.90	0.36	2.81	0.40	0.82
Friction	2.56	0.50	2.77	0.46	-1.45
Goal Direction	2.76	0.39	2.99	0.48	-1.78
Favoritism	2.10	0.53	2.02	0.52	0.49
Cliqueness	2.72	0.29	2.79	0.56	-0.52
Satisfaction	2.69	0.45	2.53	0.40	1.22
Disorganization	2.10	0.48	2.13	0.57	-0.17
Difficulty	2.37	0.26	2.56	0.51	-1.68
Apathy	2.29	0.49	2.31	0.45	-0.14
Democratic	2.60	0.30	2.36	0.42	2.31*
Competitiveness	2.36	0.48	2.45	0.33	-0.70

* significant at .05 level

** significant at .01 level

*** significant at .001 level

Table VI

Summary of Seventh Grade SRA Assessment Data-Year One

<u>MODEL SCHOOL</u>	<u>READING</u>	<u>MATHEMATICS</u>
Mean Score	49.857	47.023
Standard Deviation	7.946	7.950
<u>CONTROL GROUP</u>		
Mean Score	50.186	47.930
Standard Deviation	9.869	9.775
t (degrees of freedom)	-.239 (168)	-.667 (170)
Ratio of Model School Variance to Control Group Variance	1.543* (83,85)	1.512* (85,85)

* Significant at the .05 level

Table VII

Reading and Math SRA Achievement Grade Equivalencies for Grade 8:
Model School, Control Group, and District Average

GRADE
EQUIVALENCIES:

Model School = -----
Control Group = .-.-.-.-.-
District Average = _____

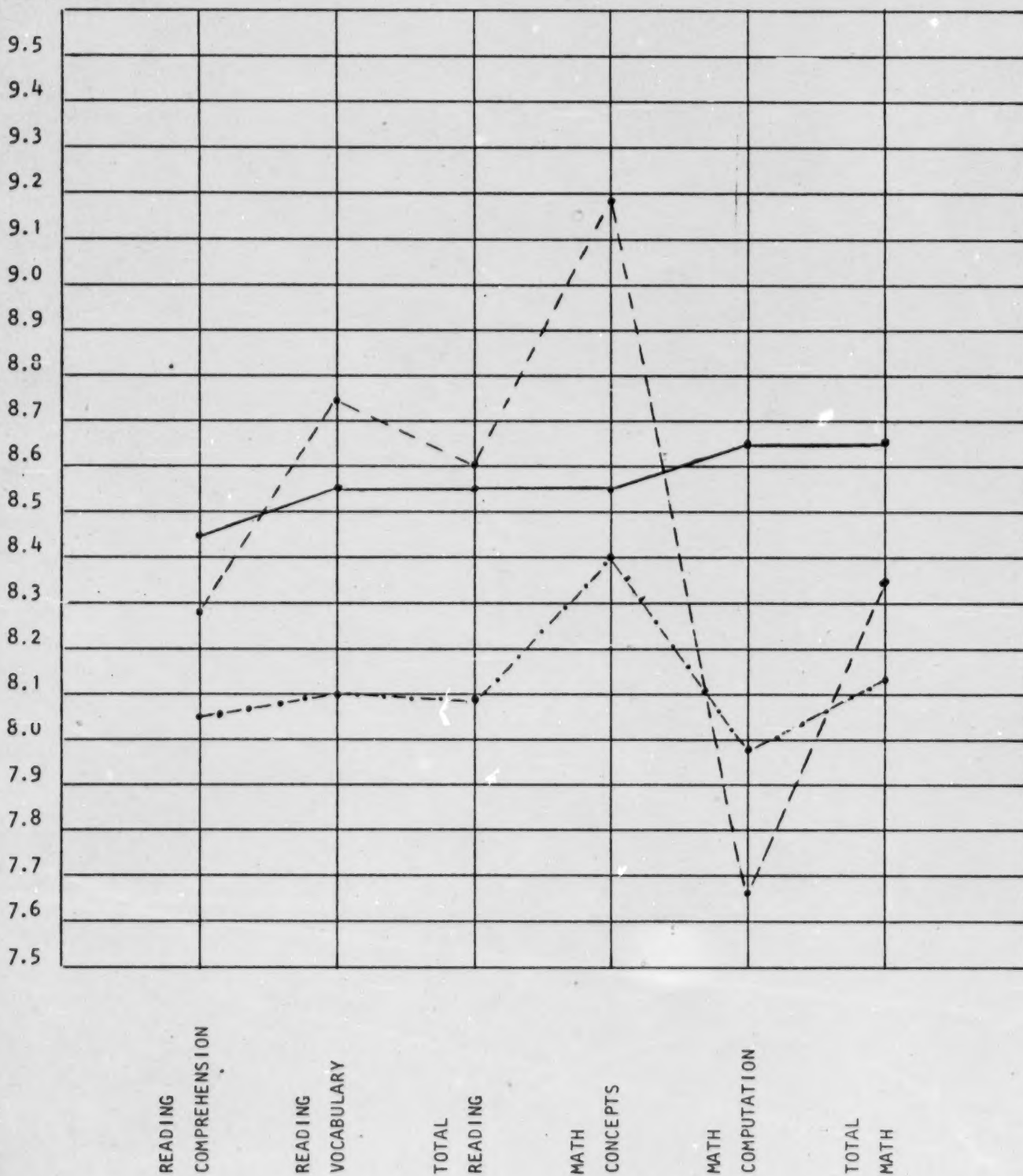


Table VIII

"How I See Myself" Self-Concept Scale Comparisons

	MODEL SCHOOL				CONTROL SCHOOLS			
	1973		1974		1974		t (1)	t (2)
	Mean (N=235)	S.D.	Mean (N=217)	S.D.	Mean (N=174)	S.D.		
Teacher-School	20.74	3.85	20.83	3.57	19.67	4.06	0.26	-2.98**
Physical Appearance	25.32	5.07	25.66	4.64	25.05	5.67	0.74	-1.17
Interpersonal Adequacy	56.71	8.28	56.07	7.66	56.55	8.53	-0.85	0.58
Autonomy	28.63	5.57	29.91	5.07	28.32	5.71	2.54*	-2.92**
Academic Adequacy	19.92	4.16	20.40	4.04	20.49	4.11	1.24	0.23
Physical Adequacy	13.87	2.75	13.76	2.78	14.26	2.61	-0.42	1.83
Emotions	13.50	3.15	13.29	3.18	13.28	3.13	-0.70	-0.03

(1) T-test of differences between 1973 and 1974 experimental students.

(2) T-test of differences between 1974 experimental and 1974 control students

* Significant at .05 level

** Significant at .01 level